

## Section 4: Existing Local Hazard Mitigation Programs, Projects and Activities

### Existing Protection

As part of the development of the PDM, the Planning Team created a matrix assessing existing plans, programs and policies that Eastham already has in place that incorporate hazard mitigation or other protective measures (Table 10). Primary protection measures can be generally grouped into three general groupings including: land development regulations, land management programs and complementary programs.

**Table 10:** Eastham – Hazard Protection Matrix

Existing Protection	Description	Area Covered	Enforcement and/or Effectiveness
Section IV - Flood Plain Zoning	Defines 100 Year Floodplain/Compliance Requirements	100 Year Floodplain (Zones A, AO, AH, A1--30, A-99, V and V1-30) FIRM 250006-005	Building Inspector (includes required comprehensive staff routing) and Zoning Board of Appeals - Rated excellent
Environmentally Sensitive Area - Regulation F(1) and (2)	Does not allow granting of variances from septic disposal regulations.	Land area within 100' of water resources and areas of high water table	Board of Health - Rated excellent
Local Wetlands Protection By-Law	Regulates development within and adjacent to Wetland Resource Areas	Wetland Resource Areas and establishes 50' protection buffer	Conservation Commission - Rated excellent
Building Permits	Enforcement of Building Code to ensure compliance	Buildings and structures Town wide	Building Inspector - Rated excellent
Beach Renourishment Program	Beneficial Reuse of dredged material to bolster shoreline protection	Town operated Cape Cod Bay beaches	Department of Public Works - Rated good
Comprehensive Emergency Management Plan	Establishes public safety response framework	Town wide	Police Chief - Components tested well
Subdivision Regulations	Requires underground utilities/drainage accommodating 25 year storm	Residential/Commercial Districts	Planning Board - Rated excellent
Section XIV - Residential Site Plan Approval	References avoiding impacts on flood plains	Residential Districts	Planning Board - rated excellent
Section XIII - Commercial Site Plan Review	Requires underground utilities/drainage accommodating 25 year storm	Commercial Districts	Planning Board - Rated excellent
Wildfire Assessment & Preparedness Program	County grant program to reduce potential fuel for wildfires	Town-owned Open Space Parcels	Barnstable County's Cooperative Extension Service – Rated excellent
National Flood Insurance Program (NFIP)	Federally backed flood insurance available to homeowners, renters, and business owners	100 Year Floodplain (Zones A, AO, AH, A1--30, A-99, V and V1-30) FIRM 250006-005	FEMA/Building Inspector – Rated excellent

## Section 5: Mitigation Strategy

This section of the PDM outlines Eastham's overall strategy to reduce vulnerability to the effects of natural hazards. The Mitigation Strategy has been separated into the following three sections:

**Mitigation Objectives** – Designed to support and correspond directly with Eastham's Community Goals (see *Section 1*).

**Mitigation Actions** – Specific measures to be undertaken by the Town in order to achieve identified objectives. Each action identifies the objective it is intended to achieve, includes some general background information justifying the proposed action, and provides measures to assure successful and timely implementation.

**Implementation of Mitigation Measures** – An **Action Plan** describing how the actions identified will be prioritized, implemented, and administered by Eastham.

### Mitigation Objectives

The Mitigation Objectives have been formulated to support and correspond directly with the Community Goals articulated in *Section 2*. These objectives have been developed to provide Eastham with measurable, short term milestones (within a five year planning horizon). Each objective is numbered (i.e., "1.1") with the first digit representing the corresponding Community Goal.

**Objective 1.1** - Preserve the natural and beneficial functions of Eastham's floodplain, wetlands, beaches and dunes through continued support of natural resource protection policies and by discouraging growth in environmentally-sensitive areas.

**Objective 1.2** - Enhance the Town's capability to conduct hazard risk assessments, demonstrate funding needs, and track mitigation activities throughout town (whether directly as part of this plan, or indirectly through the normal course of business).

**Objective 1.3** - Ensure that all new construction is completed using wind-resistant design techniques that will limit damage caused by high winds and reduce the amount of wind-borne debris.

**Objective 2.1** - Ensure that current emergency services are adequate to protect public health and safety. Ensure coordination with neighboring towns and County emergency services.

**Objective 3.1** - Maximize the use of available hazard mitigation grant programs to protect the Town's most vulnerable populations and structures.

**Objective 3.2** - Decrease the number of FEMA-identified "repetitive loss properties" from six (6) currently to three (3), or 50%, by the year 2009.

**Objective 4.1** - Ensure that all critical facilities are protected from the effects of natural hazards to the maximum extent possible.

**Objective 4.2** - Increase the level of knowledge and awareness for Town residents on the hazards that are potential threats to the area.

**Objective 5.1** – Ensure that all municipal structural mitigation measures be coordinated with Town Boards and Commissions to review a project’s sensitivity to natural features, historic resources and community character.

**Objective 6.1** - Educate property owners on affordable, individual mitigation and preparedness measures that can be taken before the next hazard event.

**Objective 6.2** - Educate Town staff on cost-effective, mitigation and preparedness measures that can be taken before the next hazard event.

### **Mitigation Actions**

In formulating the Town’s Mitigation Strategy, a wide range of activities were considered in order to help achieve the goals of the community and to lessen the vulnerability of Eastham to the effects of natural hazards. In general, all of these activities fall into one of the following broad categories of mitigation techniques:

- Prevention
- Property Protection
- Natural Resource Protection
- Structural Projects
- Emergency Services
- Public Information and Awareness

### ***Summary Available Mitigation Techniques***

**Prevention** - Proactive actions are intended to keep problems resulting from hazards getting worse. They are effective in reducing a community’s future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. Examples of preventative activities include:

- Planning and Zoning
- Open space preservation
- Floodplain regulations
- Stormwater management
- Drainage system maintenance
- Capital improvements programming
- Shoreline setbacks

**Property Protection** - Property protection measures protect existing structures by modifying the building to withstand hazardous events, or removing structures from hazardous locations. Examples include:

- Acquisition
- Relocation
- Building elevation
- Critical facilities protection
- Retrofitting (i.e., windproofing, floodproofing, etc.)
- Insurance

**Natural Resource Protection** - Natural resource protection activities reduce the potential for impact from natural hazards by preserving or restoring natural areas and their defensive functions. Such areas include floodplains, wetlands and dunes. Examples include:

- Floodplain protection
- Beach and dune preservation
- Wetland Resource Area buffers
- Fire resistant landscaping
- Erosion and sediment control
- Wetland preservation and restoration
- Habitat preservation
- Slope stabilization

**Structural Projects** - Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event. They are usually designed by engineers and managed or maintained by public works staff. Examples include:

- Levees / dikes / floodwalls / seawalls
- Diversions / Detention / Retention
- Channel modification
- Beach nourishment
- Storm drainage

**Emergency Services** - Although not typically considered a “mitigation technique,” emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems
- Evacuation planning and management
- Sandbagging for flood protection
- Installing shutters for wind protection

**Public Information and Awareness** - Public Information and awareness activities are used to advise residents, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. Examples of measures to educate and inform the public include:

- Outreach projects
- Speaker series / demonstration events
- Hazard map information
- Real estate disclosure
- Library materials
- School children education
- Hazard expositions

### **Mitigation Action Plan (MAP)**

The primary purpose of the PDM Plan is to produce a schedule of activities that will best address Eastham's hazard and flood problems, identified vulnerabilities and meet other local needs in a manner consistent with FEMA hazard mitigation planning process guidelines. Actions that will be undertaken to implement effective hazard mitigation in high risk areas in the Town of Eastham are consistent with the State and County approach of using both non-structural and structural projects, and to use a *non-structural* hazard mitigation approach before undertaking a *structural* approach.

- A ***non-structural*** hazard mitigation approach is a strategy that does not change the natural hazard, but involves preventative actions that improve infrastructure to reduce the damages, or improve coordination of resources.
- A ***structural*** hazard mitigation approach involves strategies that inhibit a natural hazard, such as a sea wall or dam.

It is important to note that these mitigation actions are short-term, specific measures to be undertaken by Eastham. It is expected that this component of the PDM Plan will be the most dynamic; it will be used as the primary indicator to measure the Plan's progress over time and will be routinely updated and/or revised through future planning efforts. As part of the developing the PDM, numerous actions items were identified through the planning process forming the basis of the MAP. The Planning Team has grouped the identified action items of the MAP into the three following groups: General (G), Infrastructure/Management (IM) and Educational (E). The Action Items proposed for Eastham to undertake are listed on the pages that follow. Each has been designed to achieve the goals and objectives identified in the PDM Plan. Each proposed action includes:

- Appropriate category for the mitigation technique
- Hazard it is designed to mitigate
- Objective(s) it is intended to help achieve
- General background information
- Potential funding sources, if applicable
- Agency/person assigned responsibility for carrying out the strategy
- Feasibility/Implementation

### ***General (G) Action Items***

<b>Action Item G1</b>	Increase protection of the floodplain by enhancing floodplain management activities within the Town of Eastham.
Hazard designed to mitigate:	Flood
Objective intended to help achieve:	1.1
General background of item:	Review existing floodplain controls in a multi-hazard context and strengthen/clarify requirement for substantial reconstruction definition
Responsibility:	Building Inspector, Planning Board
Potential funding source(s):	Operating Budget
Feasibility/Implementation:	High / 2006

<b>Action Item G2</b>	Become a participant in the National Flood Insurance Program (NFIP) Community Rating System (CRS) program through enhanced floodplain management activities. Explore opportunities to join with Barnstable County as a whole.
Hazard designed to mitigate:	Flood
Objective intended to help achieve:	1.1
General background of item:	The NFIP CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance
Responsibility:	Selectmen, Town Planner, Building Inspector
Potential funding source(s):	Operating Budget, Grants
Feasibility/Implementation:	High / 2007

<b>Action Item G3</b>	Advertise and promote the availability of flood insurance to Town property owners by direct mail at least twice a year.
Hazard designed to mitigate:	Flood
Objective intended to help achieve:	1.1, 4.2, 6.1
General background of item:	NFIP flood insurance policies protect property owners by offering affordable rates for protecting both structures and contents.
Responsibility:	Building Inspector/Town Planner
Potential funding source(s):	Operating Budget
Feasibility/Implementation:	Medium / 2008

<b>Action Item G4</b>	Use the Town's emerging Geographic Information System (GIS) to maintain current building and parcel data for the purposes of conducting more detailed hazard risk assessments and for tracking permitting / land use analysis.
Hazard designed to mitigate:	All
Objective intended to help achieve:	1.2, 2.1, 4.1, 4.2, 5.1, 6.2
General background of item:	A fully developed GIS system will greatly enhance the Town's technical capability to collect, manage, analyze and display spatially-referenced data to further hazard mitigation goals.
Responsibility:	Town Planner, MIS Director, Assessing Department
Potential funding source:	Operating Budget, Grants
Feasibility/Implementation:	High / Ongoing

<b>Action Item G5</b>	Continue to acquire and preserve parcels of land subject to repetitive flooding from willing and voluntary property owners.
Hazard designed to mitigate:	Flood, Erosion, Sea Level Rise
Objective intended to help achieve:	1.1, 3.2
General background of item:	Land acquisition is an effective mitigation technique to permanently eliminate the potential for damages from future flood events. Eastham has successfully used Land Bank funds to acquire flood prone parcels of land in the past from voluntary and willing property owners.
Responsibility for implementation assigned to:	Town Meeting, Selectmen, Town Planner, Natural Resources Director
Potential funding source(s):	Land Bank, Grants and Donations
Feasibility/Implementation:	High / Ongoing

<b>Action Item G6</b>	Conduct a thorough evaluation of the Town's most at-risk locations identified in the Vulnerability Analysis, and evaluate the potential mitigation techniques for protecting each location to the maximum extent possible.
Hazard designed to mitigate:	All
Objective intended to help achieve:	1.2, 4.1, 5.1, 6.2
General background of item:	A thorough evaluation of potential mitigation opportunities for Eastham's identified critical locations must still be completed. An inventory/database on critical facilities should be created and maintained by the Town. This inventory should include information on the risk to each location, and should also document any cost-effective mitigation techniques to consider when funding becomes available

Responsibility:	DPW, NRO, BOH, BI and TP
Potential funding source(s):	Town Meeting, Grants
Feasibility/Implementation:	Medium / 2005

<b>Action Item G7</b>	Monitor the Town's emergency response services to identify needs or shortfalls in terms of personnel, equipment or required resources.
Hazard designed to mitigate:	All
Objective intended to help achieve:	2.1
General background of item:	Any identified needs or shortfalls should become documented and result in specific recommendations to the Selectmen for emergency service enhancements.
Responsibility:	Police Chief, Fire Chief, Health Agent
Potential funding source(s):	Operating Budget
Feasibility/Implementation:	High / Ongoing

<b>Action Item G8</b>	Revise the Town's Flood Plain Zoning (Section IV) to incorporate cumulative substantial damage or improvement requirements.
Hazard designed to mitigate:	Flood, Erosion, Sea Level Rise
Objective intended to help achieve:	1.1
General background of item:	Eastham's Zoning Bylaws currently limits the definition of "substantial improvement" to one-time damage repairs or improvements. Communities can reduce flood damage by counting improvement and repair projects cumulatively, so that buildings will be brought into compliance with flood protection standards earlier in their life cycle. This will require the Town to maintain permit history so when cumulative repairs or improvements equal 50% of the building value, the building must be brought up to current codes for floodplain development.
Responsibility for implementation:	Town Planner, Building Inspector
Potential funding source(s):	Operating Budget, Grants
Feasibility/Implementation:	High / 2006

<b>Action Item G9</b>	Incorporate the inspection and management of hazardous trees/limbs into the Town's routine monitoring process.
Hazard designed to mitigate:	Wind, Snow & Ice
Objective intended to help achieve:	2.1, 4.1, 5.1, 6.2
General background of item:	A significant amount of property damage during high wind events results from tree failure. Trees that fall into utility lines have additional serious consequences such as causing power outages, surges, fires and other damage. The Town's ability

	to recognize and prevent hazardous tree conditions (through inspection, pruning or removal) is the best defense against problems and costly damages resulting from tree failure. Specifically, trees located on Town properties which pose immediate threats to property, utility lines and other critical facilities should be addressed.
Responsibility:	DPW, Fire Department
Potential funding source(s):	Operating Budget, Grants
Feasibility/Implementation:	Medium / Ongoing

<b>Action Item G10</b>	Augment the enforcement the State Building Code and related Town Bylaws by encouraging wind-resistant design techniques for new residential construction and reconstruction during the Town's permit process.
Hazard designed to mitigate:	Wind
Objective intended to help achieve:	1.3, 4.1, 4.2, 6.1, 6.2
General background of item:	Although the State Building Code requires certain building practices for wind loss reduction, experts agree that structures built to exceed high wind provisions have a much greater chance of surviving violent wind storms. Additional techniques include adding protection for windows (i.e., shutters), anchoring door frames with multiple hinges, stiffening garage doors with additional bracing, reinforcing masonry chimneys with vertical steel, and strengthening connections between walls and the roof with hurricane straps and ties. These techniques should be promoted to building contractors and homebuyers by the Town for all new residential construction, to the maximum extent possible during the building permit process.
Responsibility:	Building Inspector
Potential funding source(s):	Operating Budget
Feasibility/Implementation:	Low / 2007

<b>Action Item G11</b>	Conduct a quantification of potential losses by estimating potential losses at varying degrees of storm surge, wind, and stormwater hazard severity, as well as specific impacts on critical facilities for the PDM five (5) year update.
Hazard designed to mitigate:	All
Objective intended to help achieve:	1.2, 2.1, 3.1
General background of item:	Due to data processing limitations, this analysis could not be conducted for this plan. As the Town's Geographic Information System (GIS)

	capabilities expand, these estimates will be calculated. With the development of a building footprint GIS “layer”, the estimation of potential losses at varying degrees of storm surge, wind, and stormwater hazard severity, as well as specific impacts on critical facilities will be evaluated
Responsibility:	Town Planner
Potential funding source(s):	Operating Budget
Feasibility/Implementation:	High / 2009

<b>Action Item G12</b>	Develop a map indicating hazard sensitive parcels acquired by Eastham
Hazard designed to mitigate:	All
Objective intended to help achieve:	1.1, 1.2, 4.2, 5.1, 6.1, 6.2
General background of item:	A graphical depiction of past land acquisitions that further hazard mitigation principles does not exist.
Responsibility:	Town Planner, Natural Resources Officer
Potential funding source(s):	Operating Budget, Grants
Feasibility/Implementation:	High / 2006

### ***Infrastructure/Management (IM) Action Items***

<b>Action Item IM1</b>	Regular maintenance dredging of Rock Harbor Creek
Hazard designed to mitigate:	Erosion, Sea Level Rise
Objective intended to help achieve:	2.1, 4.1, 5.1
General background of item:	In order to protect economic and recreational interests by keeping this vital waterway connection with Cape Cod Bay viable for navigation purposes.
Responsibility for implementation:	Natural Resources Officer
Potential funding source(s):	Grants
Feasibility/Implementation:	Medium / 2005

<b>Action Item IM2</b>	Reconstruction of Steele Road
Hazard designed to mitigate:	Flood
Objective intended to help achieve:	1.1, 3.1, 4.1, 5.1
General background of item:	Steele Road in North Eastham, an area mapped by FEMA as a “Zone B”, has been experiencing flooding from contributing drainage areas for over fifty years. The goal of the proposed project is to reconstruct Steele Road, and correct drainage deficiencies of surrounding roads if necessary, to mitigate recurring negative flooding impacts by elevating the road surface and improving drainage. The proposed drainage improvements would be capable of intercepting the 25 year storm event.

	The Town has received a Project Impact Grant for project design which was completed May 2004.
Responsibility for implementation:	DPW
Potential funding source(s):	Chapter 90 Funds, Grants
Feasibility/Implementation:	High / 2005

<b>Action Item IM3</b>	Continue to participate in marsh restoration project that improve tidal flushing
Hazard designed to mitigate:	Flood, Fire, Erosion, Sea Level Rise
Objective intended to help achieve:	1.1, 4.1, 5.1
General background of item:	Several tidally influence water bodies in Eastham are physically restricted in their ability to exchange water freely during tidal cycles. Reducing or removing these restrictions provide hazard mitigation benefits including increased flood storage capacity and reduced wildfire fuel potential from invasive species growth (i.e., phragmites) resulting from limited flushing.
Responsibility:	Natural Resources Officer, Town Planner
Potential funding source(s):	Grants
Feasibility/Implementation:	Medium / Ongoing

<b>Action Item IM4</b>	Participate in Barnstable County's Cooperative Extension Service's grant program for wildfire fuel reduction programs.
Hazard designed to mitigate:	Fire
Objective intended to help achieve:	3.1, 4.1
General background of item:	The Town owned parcels of conservation and recreation lands are potential sources of wildfires in areas with proximity to residentially developed areas. The Town has submitted grant proposals for three areas: Wiley Park, Cottontail Acres and the Nickerson Property.
Responsibility:	Natural Resources Officer
Potential funding source(s):	Grants
Feasibility/Implementation:	Medium / 2005

<b>Action Item IM5</b>	Coordination with National Seashore on fuel reduction programs and response
Hazard designed to mitigate:	Fire
Objective intended to help achieve:	2.1, 3.1, 4.1
General background of item:	The Cape Cod National Seashore encompasses over 3,000 acres within Eastham or approximately 1/3 of its land area.
Responsibility:	Fire Department
Potential funding source(s):	Operating Budget
Feasibility/Implementation:	Medium / Ongoing

### *Educational Action Items*

<b>Action Item E1</b>	Collect educational materials on preparedness/mitigation measures for individual property owners, for display and distribution at Town Hall, Natural Resources Office, Library and Council on Aging offices.
Hazard designed to mitigate:	All
Objective intended to help achieve:	4.2, 6.1
General background of item:	FEMA, the Massachusetts Emergency Management Agency (MEMA), the National Weather Service and other agencies can provide information brochures and pamphlets on property protection measures at no cost to local governments.
Responsibility:	Building Inspector / Town Planner
Potential funding source(s):	Operating Budget
Feasibility/Implementation:	High / 2006
<b>Action Item E2</b>	Develop an educational flyer targeting NFIP policyholders on the Increased Costs of Compliance (ICC) coverage, to be disseminated following a flood event that results in substantial damage determinations by the Town.
Hazard designed to mitigate:	Flood
Objective intended to help achieve:	3.1, 4.2, 6.1, 6.2
General background of item:	Increased Cost of Compliance (ICC) under the NFIP provides for the payment of a claim to help pay for the cost to comply with State or community floodplain management laws or ordinances from a flood event in which a building has been declared substantially damaged. When an insured building is damaged by a flood and the State or community declares the building to be substantially damaged, ICC will help pay for the cost to elevate, flood proof, demolish or relocate the building up to \$20,000. This coverage is in addition to the building coverage for the repair of actual physical damages from the flood.
Responsibility:	Building Inspector
Potential funding source(s):	Operating Budget, Grants
Feasibility/Implementation:	High / 2008
<b>Action Item E3</b>	On an annual basis, contact all owners of FEMA-identified repetitive loss properties and inform them of the assistance available through the federal Flood Mitigation Assistance (FMA) program, in

	addition to other flood protection measures.
Hazard designed to mitigate:	Flood
Objective intended to help achieve:	1.1, 3.1, 3.2, 4.2, 6.1, 6.2
General background of item:	Each of these properties are targeted by FEMA and the State of Massachusetts for Flood Mitigation Assistance (FMA) funding, which will fund up to 75% of a mitigation project to eliminate future flood risk (usually through elevation or acquisition or relocation). FMA funds are awarded on an annual basis by the Massachusetts Division of Emergency Management. Eligible property owners should be contacted every year to promote the availability of the FMA funding and to determine their level of interest in applying for the program.
Responsibility:	Building Inspector, Town Planner
Potential funding source(s):	Operating Budget
Feasibility/Implementation:	High / 2008

<b>Action Item E4</b>	Annually host a public hazards display for the residents of Eastham, in combination with the “Windmill Weekend” festival or another appropriate community event.
Hazard designed to mitigate:	All
Objective intended to help achieve:	1.1, 4.2, 6.1
General background of item:	A hazard display for Town residents should be added to an established community event drawing large crowds. The display should be geared toward educating them on the hazards which threaten Eastham, and the mitigation and preparedness measures available to protect them. Educational displays/handouts should be provided such as Flood Insurance Rate Maps, storm surge inundation maps, FEMA publications, hurricane tracking charts, safety tips, etc.
Responsibility for implementation assigned to:	Town Planner / Building Inspector
Potential funding source(s):	Operating Budget, Grants
Feasibility/Implementation:	High / 2007

<b>Action Item E5</b>	Conduct an educational workshop targeting Cape Cod Bay coastal area land owners and contractors on hazard mitigation.
Hazard designed to mitigate:	Flood, Wind, Erosion, Sea Level Rise
Objective intended to help achieve:	1.1, 1.3, 3.1, 3.2, 4.2, 6.1
General background of item:	Development pressure to redevelop existing dwellings in hazard prone areas is increasing an educational forum would be beneficial to homeowners and the contracting/design

	community. This workshop would also be an opportunity to provide a detailed presentation on shoreline change data
Responsibility:	Town Planner, Building Inspector, Natural Resources Officer
Potential funding source(s):	Operating Budget, Grants
Feasibility/Implementation:	High / 2007

<b>Action Item E6</b>	Enhance promotion of concepts developed as part of National Fire Protection Association's FIREWISE program ( <a href="http://www.firewise.org">www.firewise.org</a> ) beyond National Seashore residents.
Hazard designed to mitigate:	Wildfire
Objective intended to help achieve:	4.1, 4.2, 6.1, 6.2
General background of item:	Currently, the Cape Cod National Seashore with the assistance of AmeriCorps has a program introducing Firewise concepts to residents within the Seashore Boundary. Additional education of residents beyond seashore boundary is warranted due to potential wildfire hazards Town wide
Responsibility:	Fire Department
Potential funding source(s):	Operating Budget
Feasibility/Implementation:	Medium / Ongoing

### **MAP Prioritization**

The items listed in the MAP provide a framework for mitigating future damages and/or losses of life based upon the analysis conducted in this PDM Plan. To place the MAP in a context recognizing potential constraints to implementation, the Planning Team discussed each action item and determined its feasibility and priority. Discussions were based upon the STAPLEE criteria suggested in the Natural Hazards Mitigation Planning: A Community Guide. STAPLEE is an acronym for a general set of criteria used to make decisions regarding community initiatives, standing for social(S), technical(T), administrative(A), political(P), legal(L), economic(E), and environmental(E) decision-making criteria. Using these criteria the Planning Team determined the overall feasibility of the action items included in the MAP. The results of applying the STAPLEE criteria, generally correlates feasibility with priority.

STAPLEE ranks all action items against each other, without regard to impact on reducing Eastham's vulnerability to natural hazards. Consideration had to be given to actions intended to address the greatest hazard risk(s). Therefore, the Planning Team weighted the ranking of the STAPLEE criteria by adding in the hazard scores assigned to the hazards Eastham faces (refer to Table 3: Hazard Identification and Ranking Matrix).

If an action item would address multiple hazards it was given a value often (10), which is one number higher than the highest hazard score assigned. This hazard-weighted STAPLEE mitigation strategy resulted in three levels of priority based on equally distributing the results:

- High (31-29 points) = 14 Action Items
- Medium (28-26 points) = 8 Action Items
- Low (25-23 points) = 1 Action Item

**Table 11:** STAPLEE Feasibility Analysis of MAP Action Items

MAP Action Item	Hazard Index	Feasibility / Soundness					Soundness		Score
		Social	Technical	Admin.	Political	Legal	Econ.	Environ.	
High Feasibility									
E1	10	3	3	3	3	3	3	3	31
G5	10	3	3	3	3	3	3	3	31
G7	10	3	3	3	3	3	3	3	31
E3	9	3	3	3	3	3	3	3	30
E4	10	3	3	2	3	3	3	3	30
E5	10	3	3	2	3	3	3	3	30
G2	9	3	3	3	3	3	3	3	30
G4	10	3	3	2	3	3	3	3	30
G8	10	3	3	3	2	3	3	3	30
E2	9	3	3	2	3	3	3	3	29
IM2	9	2	3	3	3	3	3	3	29
G1	9	3	3	3	2	3	3	3	29
G11	10	3	2	2	3	3	3	3	29
G12	10	3	2	2	3	3	3	3	29
Medium Feasibility									
G3	9	3	3	2	2	3	3	3	28
G9	10	2	3	2	2	3	3	3	28
IM3	10	2	3	2	2	3	3	3	28
E6	6	3	3	3	3	3	3	3	27
G6	10	2	3	2	2	3	2	3	27
IM1	10	2	3	1	2	3	3	3	27
IM4	6	3	3	3	3	3	3	3	27
IM5	6	3	3	3	3	3	3	3	27
Low Feasibility									
G10	7	2	3	2	2	3	3	3	25

STAPLEE Feasibility Analysis of MAP Action Items (Table 11) presents the complete results. Although all of the action items identified will likely reduce costs by avoiding losses, many projects are costly to implement. Eastham will continue to seek outside funding assistance for projects in both the pre- and post-disaster environment.

## **Section 6: Implementation and Adoption of this Plan**

### **Process**

The final PDM was adopted by the Eastham Board of Selectmen after the close of the public comment period and incorporation of applicable comments on October 20, 2004. The Eastham PDM will be implemented through the delegation of assignments by the Board of Selectmen through the Town Administrator, and as specified within this Plan. In *Section 3: Mitigation Strategy*, mitigation actions are listed and assigned specific implementation measures which include the assignment of responsibilities to Town departments and/or specific Town staff, along with the establishment of a targeted completion date for each proposed mitigation action. When applicable, potential funding sources were also listed.

It will be the responsibility of the Town Administrator, as he/she sees fit, to ensure these actions are ultimately carried out no later than the target completion dates unless reasonable circumstances prevent their implementation (i.e., lack of funding availability). Otherwise, the completion of each proposed mitigation action has been determined feasible within the timeframe allowed.

### **Funding Sources**

Although all mitigation techniques will likely save money by avoiding losses, many projects are costly to implement. The Town of Eastham will continue to seek outside funding assistance for mitigation projects in both the pre- and post-disaster environment. A list of primary Federal, State and County grant programs for Eastham to consider is included in the Barnstable County Regional PDM Plan.

### **Monitoring and Reporting**

Periodic monitoring and reporting of the PDM is required to ensure that the goals and objectives for Eastham are kept current and that local mitigation efforts are being carried out. The Plan has therefore been designed to be user-friendly in terms of monitoring implementation and preparing regular progress reports.

### **Annual Reporting Procedures**

The PDM shall be reviewed annually, by the Planning Team, or as situations dictate such as following a disaster declaration. Each year, the Town Administrator will assign responsibility for conducting this annual review to a specific department or individual. This department or individual will ensure the following:

1. The Board of Selectmen and the Town Administrator will receive an annual report and/or presentation on the implementation status of the PDM. This report will include, at a minimum, a completed, printed version of the Mitigation Action Plan (MAP) indicating the implementation status of each identified action.

2. The report will also include an evaluation of the effectiveness and appropriateness of the mitigation actions proposed in the Plan.
3. The report will recommend, as appropriate, any required changes or amendments to the Plan. If the Board of Selectmen determines that the recommendations warrant modification to the PDM, the Board may initiate a Plan Amendment as described below.

### **Revisions and Updates**

Periodic revisions and updates to the PDM are required to ensure that the hazard mitigation goals and objectives for Eastham are kept current. More importantly, revisions may be necessary to ensure the Plan is in full compliance with Federal regulations and State statutes. This portion of the Plan outlines the procedures for completing such revisions and updates.

**Five (5) Year Plan Review** - The PDM should be reviewed every five (5) years to determine if there have been any significant changes in Town that would affect the Action Plan. Increased development, increased exposure to certain hazards, the development of new mitigation capabilities or techniques, and changes to Federal, State or County legislation are examples of changes that may affect the condition of the PDM.

**Disaster Declaration** - Following a disaster declaration, the PDM will need to be revised to reflect on lessons learned or to address specific circumstances arising out of the disaster.

**Selectmen Determination** - If the Board of Selectmen determines that the recommendations warrant modification to the PDM, the Board may either initiate a Plan Amendment as described below or, if conditions justify, may direct the Town Administrator to undertake a complete update of the Plan.

### **Plan Amendments**

An amendment to the Plan should be initiated only by the Board of Selectmen, either at its own initiative or upon the recommendation of the Town Administrator, Town Planner, Town Emergency Manager, or some other person or agency. Upon initiation of an amendment to the Plan, Eastham will forward information on the proposed amendment to all interested parties including, but not limited to, all affected Town departments, residents and businesses. Information will also be forwarded to Barnstable County (Cape Cod Commission) and the Massachusetts Emergency Management Agency. This information will be sent out in order to seek input on the proposed Plan amendment for not less than a forty-five (45) day review and comment period.

At the end of the comment period, the proposed amendment and all review comments will be forwarded to the Town Administrator (or his/her designee) for consideration. If no comments are received from the reviewing parties within the specified review period, such will be noted accordingly. The Town Administrator (or his/her designee) will review the proposed amendment along with the comments received from other parties, and submit a recommendation to the Board of Selectmen within sixty (60) days.